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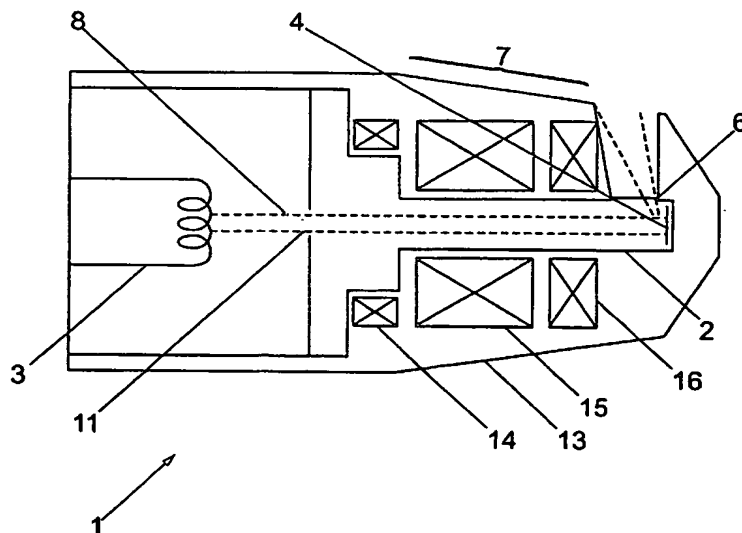
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(54) Title: METHOD AND APPARATUS FOR PROLONGING THE LIFE OF AN X-RAY TARGET



## (57) Abstract

An X-ray generator (1) comprises an evacuated and sealed X-ray tube (2), containing an electron gun (3) and an X-ray target (4). An electron beam is produced by the electron gun (3) in which the cathode is at negative high voltage, the electron gun (3) consisting of a filament just inside the aperture (11) of a Wehnelt grid which is biased negatively with respect to the filament. Two sets of beam deflection coils (14), are employed in two planes, mounted between the anode of the electron gun (3) and the focussing lens (15) to centre the beam. Between the focussing lens (15) and the target (4) is an air-cored quadrupole magnet which acts as a stigmator (16) in that it turns the circular cross-section of the beam into an elongated one. This quadrupole (16) can be rotated about the tube axis so as to adjust the orientation of the line focus. The beam can be moved about on the target surface (4) by controlling the currents in the four coils of the quadrupole (16).